

(No Model.)

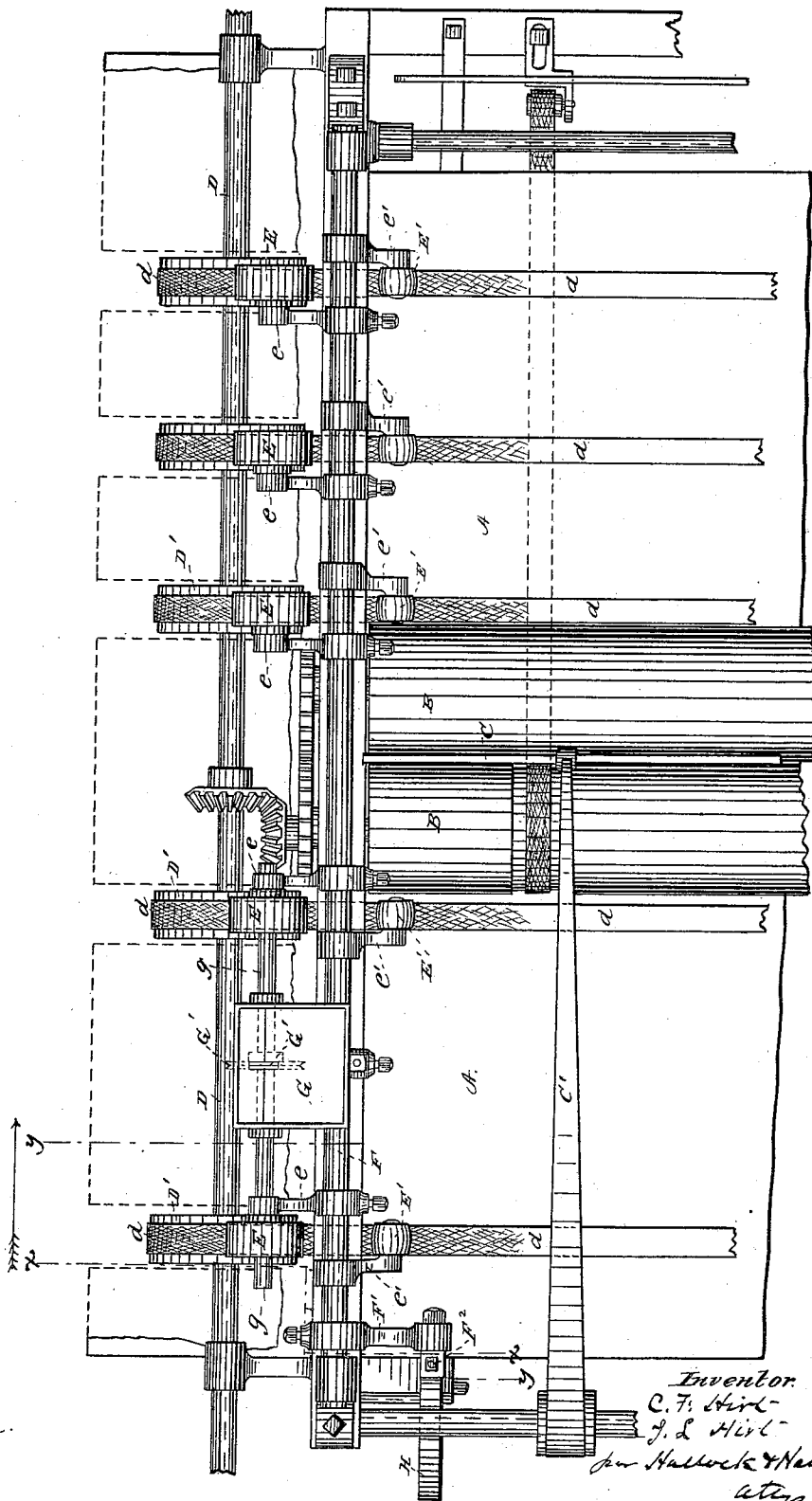
2 Sheets—Sheet 1.

C. F. & J. L. HIRT.
PAPER FOLDING MACHINE.

No. 330,485.

Patented Nov. 17, 1885.

Fig. 1.



Witnesses.
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Robt. H. Porter.

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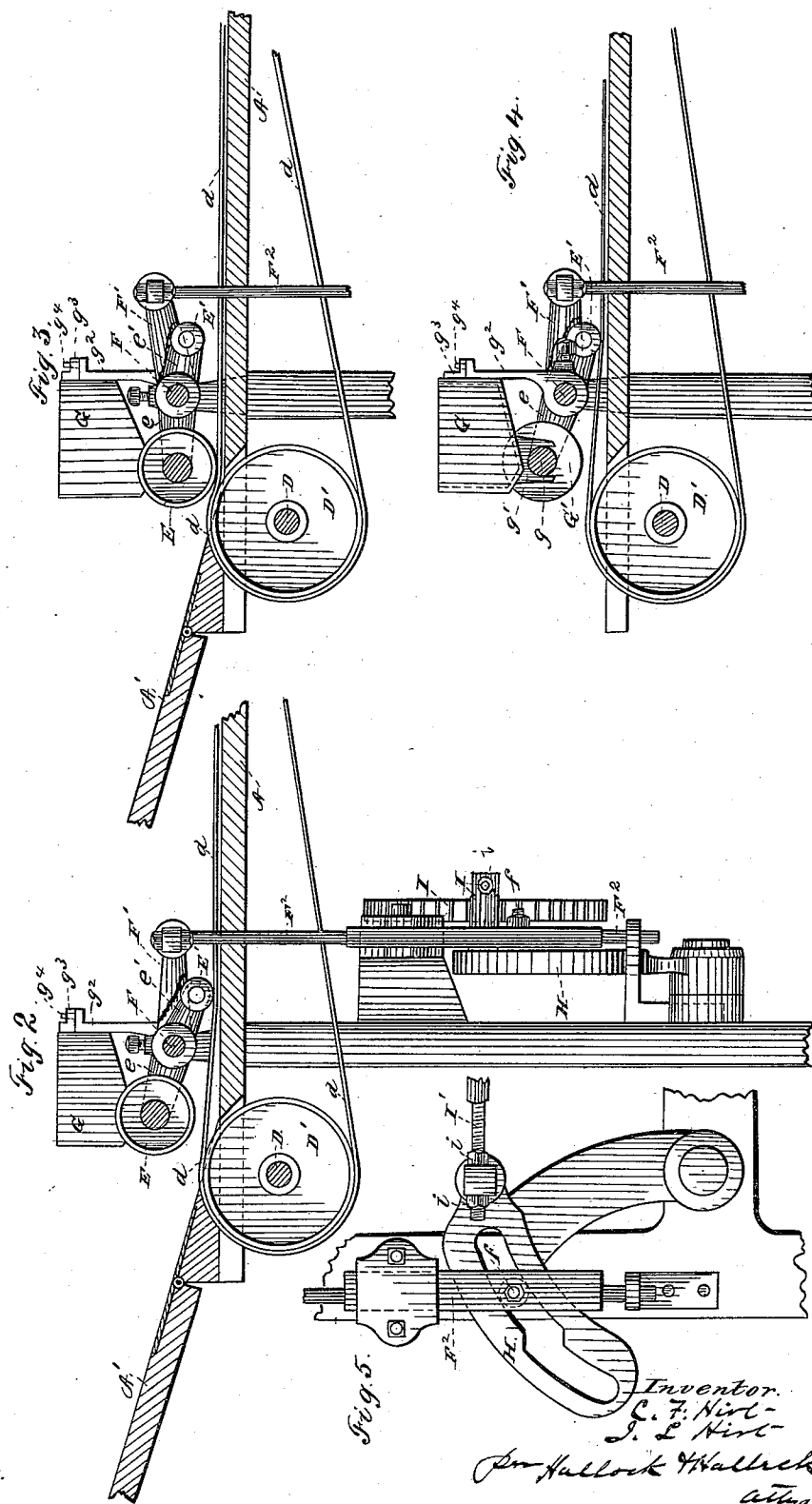
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

CHARLES F. HIRT AND JACOB L. HIRT, OF ERIE, PA., ASSIGNORS TO THE BROWN FOLDING MACHINE COMPANY, (LIMITED,) OF SAME PLACE.

PAPER-FOLDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 330,485, dated November 17, 1885.

Application filed June 9, 1884. Serial No. 134,247. (No model.)

To all whom it may concern:

Be it known that we, CHARLES F. HIRT and JACOB L. HIRT, citizens of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Paper-Folding Machines; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to paper-folding machines; and it consists in improvements upon the feeding mechanism, as will hereinafter be fully described, and pointed out in the claims.

Our improvements are illustrated in the accompanying drawings as follows:

Figure 1 is a plan or top view of the front or feeding side of a paper-folding machine embodying our improvements. Fig. 2 is a vertical section on the line *xx* in Fig. 1. Fig. 3 is a like view showing a change of position of the drop-rolls. All the parts seen in Fig. 2 are not shown, however. Fig. 4 is a vertical section on the line *yy* in Fig. 1. Fig. 5 is a side elevation of the cam *H* and its connections.

Letters of reference indicate parts as follows:

A is the table or top of the machine; *A'*, the feeding-table; *B B*, the first folding-rollers; *C*, the first folding knife or starter; *D*, the shaft of the feeding-rollers; *D' D'*, &c., the said feeding-rollers; *d d*, &c., the feeding-tapes; *E E*, &c., the drop-rollers. *E' E'* are secondary drop-rollers. *e e*, &c., and *e' e'*, &c., are respectively the arms of said drop-rollers *E* and *E'*. *F* is the rock-shaft which carries the said arms *e* and *e'*. *G* is the paste-cup; *G'*, the pasting-wheel; *g*, the shaft of the pasting-wheel; *F'*, the arm by which the rock-shaft *F* is moved; *F²*, the rod by which said arm is moved; *H*, the cam by which said rod is moved; *I*, a cog-gear for moving said cam, and *I'* a connecting-rod connecting the gear and the cam.

Letters designating minor parts will be referred to in proper connection in the description following.

Only such parts of the whole machine have been shown as are necessary to illustrate our

improvements and show their location and operation.

In Figs. 2, 3, and 4 the arm *F'* is broken away so as to show parts beyond.

The object of our construction is as follows: To provide a secondary set of drop-rollers placed back of the main drop-rollers and acting alternately with them. These secondary rollers are brought into action after the sheet has been drawn some distance in, and as this is done the main or primary drop-rollers are raised up off the sheet. The advantage of this construction is chiefly apparent in hand-fed machines, for it enables the feeder to bring a fresh sheet down into place under the passing sheet before it is wholly fed in without danger of its being caught and carried in, thus giving the feeder more time to manipulate the sheets.

The construction is as follows: The construction and arrangement of the feed-rollers *D'* and their shaft *D*, the tapes *d*, the drop-rollers *E*, and the rock-shaft *F* are the same as commonly, except that the rock-shaft is set back so that the rollers *E* do not drop upon the top of the rollers *D'*, but back on the tapes far enough to deflect them somewhat, as clearly seen in Fig. 3. These secondary drop-rollers *E'* are mounted on a second series of arms, *e'*, on the opposite side of the rock-shaft *F* from the primary drop-rollers *E* and their arms *e*, so that when the rock-shaft is tilted so as to bring the primary rollers *E* onto the paper the secondary rollers *E'* are raised up, and vice versa. Thus the two sets of rollers act alternately. The primary rollers *E* act when the sheet is first started into the machine, and the secondary rollers after the sheet has got in more or less past the secondary rollers, according to the adjustment of the cam *H*, as will hereinafter be described. The rock-shaft *F* is moved by the arm *F'*, which is connected with an operating-cam, *H*, by the rod *F²* and the cam-pin *f*. The cam *H* is connected with any proper gearing (indicated by a cog-gear, *I*) by a connecting-rod, *I'*. This connecting-rod *I'* is made adjustable by nuts *ii*, so as to regulate the position of the cam, so as to time its action upon the rod *F²*, and thus time the action of the rock-shaft. By this device the rock-shaft can be made to tilt back and bring the secondary rollers *E'* into action upon the

sheet at any time desired, or prevent them from doing so if it is desired to keep the primary rollers upon the paper during its entire passage, as is the case when the paster is in use. The paster-wheel G' is mounted on a short shaft, g , which also carries two of the primary drop-rollers E . (It is not necessary that the shaft g have two of the rollers E on it; one will do.) On the rock-shaft F is a bracket, g^2 , which serves as a support for the paste-cup G . The cup G is easily detachable from this support, being held there by a pin, g^4 , which fits in a hole in a lug, g^3 , on the back of the cup. The cup is further supported by pronged feet g' , which set onto the shaft g . It will be seen that the paste-cup and wheel rock with the shaft F , and the wheel G' comes into action at the same time as the rollers E . When the paster is not wanted, the cup G is removed, but the wheel G' remains upon the shaft g .

What we claim as new is—

1. In a paper-folding machine, the combination, with the feed-rollers and feeding-tapes, of a rock-shaft having thereon two sets of drop-rollers, arranged as described, to be brought into action alternately on the same sheet as the rock-shaft is tilted.

2. In a paper-folding machine, the combination, substantially as shown, of the following elements: the feed-rollers and tapes $D' d$, the rock-shaft F , the arms $e e'$ on the same shaft and carrying the rollers $E E'$, the arm F' , connecting-rod F^2 , and cam H .

In testimony whereof we affix our signatures in presence of two witnesses.

CHARLES F. HIRT.
JACOB L. HIRT.

Witnesses:

JNO. K. HALLOCK,
ROBERT H. PORTER.